

Determinants of Malaysia's Halal Trade Flow: Influence of Halal Certifications and Muslim Population

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Abstract

This paper aims to investigate the influence of Halal trade costs, certification, and Muslim population size on Halal trade flows. While the Halal exports are growing steadily, the performance is still very far from the targeted growth. Thus, an understanding of the determinants of Halal export flows is essential. This study utilizes the structural gravity model by Heid et al. (2017) using actual Halal export data from 2010 to 2018. Findings indicated that Halal certification and Muslim population have a positive influence on trade flows while importers per capita income, as well as common border effect, flows adversely. This study contributes to the body of knowledge by measuring the influence of Halal certification, and Muslim's demand on Halal exports flows using actual total Halal exports. It suggests a definition of halal industry as well as some policy recommendations and strategic promotion of Halal exports.

Keywords: Halal, Trade Flows, Gravity Model.

Introduction

Endowed with thriving domestic Halal industry and expertise in the Halal certification processes and Halal standard, the Third Industrial Master Plan (IMP3) outlined strategies to establish Malaysia as a leading supplier of Halal products and services globally (MITI, 2006). The establishment of Halal Industry Development Corporation (HDC) on 18 September 2006 is an attempt by the Government to manage the halal industry in a more coordinated effort. The Halal Industry Masterplan (HIMP) with specific targets was launched to ensure that the Halal industry develops in an integrated and comprehensive manner. According to the Malaysia Halal Industry Report 2015, export for the Halal sector is targeted to be around RM100 billion in 2020 (Halal Industry Development Corporation (HDC), 2016), which approximately 50 per cent of Malaysia's total non-E&E exports currently. HDC also have

selected target markets for halal exports. The primary target market for halal exports is the greater Gulf Cooperation Council Region (GCC) and The South East Asian (SEA) countries. Meanwhile, the secondary target market is China, India, and Pakistan for the Asia continent. United Kingdoms, Norway, Sweden, France, German, Portugal, Netherland and Denmark for Europe, and Canada and the USA for North America continent (Halal Industry Development Corporation (HDC), 2016).

The word Halal signify that the products or service is permissible for consumption. According to Al-Qaradawi (1960), the first fundamental in Islam is that all things created by the almighty Allah s.w.t. are permissible or halal, except those that are explicitly prohibited in the Holy Quran or hadith. Another interesting concept closely connected with the halal concept is the safety and quality products and conducts better known as *toyyib*. Thus the halal concept should include *toyyib*, or the better terms are *Halalan Toyyiban*, which can be translated as permissible and wholesomeness (Nawawi *et al.*, 2016). A definition of halal industry is not readily available thus, considering the concept of *Halalan Toyyibban*, Halal industry is defined as an industry that produces and offer good quality products and services that are in accordance with the Syari'ah law. Syari'ah law is the law that governs Muslims everyday conducts. Halal industry includes sectors such as food, cosmetics, ingredients, pharmaceutical, chemicals, livestock, logistics, tourism and most notably the Islamic finance and banking sector (Muhammad, Zawanah, Md.Salleh, Munir & Mahmood, 2008). This proposed definition will not change the structure of the halal industry. In fulfilling the requirement of Syari'ah law as in the definition, the current practices of getting Islamic authority to audit and certified Halal products and services are followed. Self-proclaimed of products and services as Halal is not recommended as it will lead to a problem on integrity as well as different interpretation on Islamic concept.

In the eight years since the launch of the HIMP in 2008, Halal industry has grown significantly with Halal export recording an average annual growth of 18 per cent (Halal Industry Development Corporation (HDC), 2016). While the performance of Halal exports is positive and growing steadily, the growth is still very far from the targeted growth. Currently, the compounded annual growth rate (CAGR) for the period of 2011 to 2015 is only 11.7 per cent and the yearly historical growth rate trend although always positive would not be sufficient as a baseline projection to provide the quantum needed to achieve the targeted growth in the year 2020. Figure 1 depicts the gaps between targeted and baseline growth of the Halal industry in Malaysia.

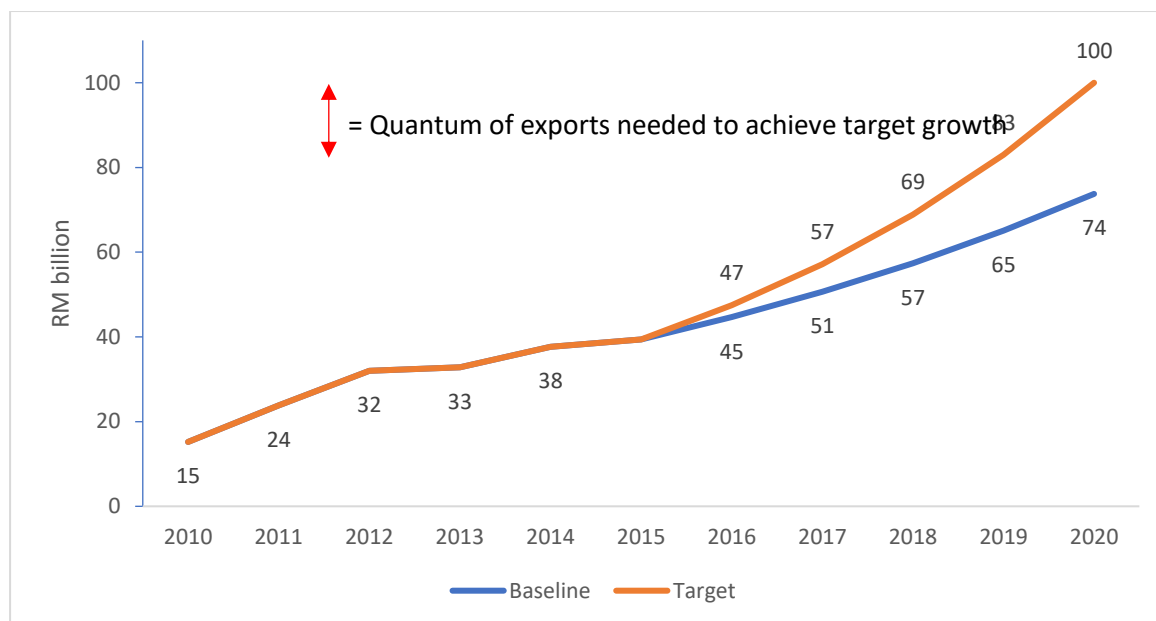


Figure 1: The gaps between targeted and baseline growth of the Halal industry

In order to achieve the target growth for Halal exports as well as streamlining the target market, an understanding of the determinants of Halal exports flows is essential. Recent studies on Halal focused on the conceptual framework of Halal management and mostly exploratory in nature. Studies on the Halal economy, particularly Halal export and trade flows of Halal products are rather scarce (Mazlan and Hamzah, 2015; Bergeaud-Blackler, Ficher and Lever, 2016). Notably, there is a lack of evidence-based literature describing the influence of Halal certification and Muslim population on Halal trade flows. Identifying and understanding the determinants of Halal exports and whether Muslims populations and Halal certification influence demand will help to increase the effectiveness of the Halal industry strategic plan and help to realise the targeted growth.

Determinants of Halal Trade Flows

Ambali and Bakar (2014) as well as Awan, Siddiquei, and Haider (2015) agree that marketing, Halal certificate and religious belief play an essential part in influencing intention to purchase Halal products. Meanwhile, Safiek Mokhlis (2009), concludes from his review on previous empirical studies that there is a causal link between religion and consumer behaviour and the degree of religiosity are more important in influencing consumer shopping orientation than the affiliation to any specific religious faith. The relation between religion and consumer demand are further supported by Minkus-McKenna (2007), who commented that grocer that comply with the Halal requirement would gain a loyal customer as 70 per cent of Muslims populations adhere to Halal standards requirements. This suggestion is also supported by Hussaini (2010) in his book on Muslim dietary consumption in the USA; claiming that Halal certificate and religious belief play an essential part in influencing intention to purchase Halal products. Deductively from the previous studies, the countries with the majority of Muslims in their population should import more halal products compared to others.

The level of awareness of the Halal concept influences the purchasing decisions and behaviour of consumers (Razak *et al.*, 2015). Razak *et al.* (2015) conclude that awareness of Halal is the most crucial factor that influencing consumer tendency to choose Halal products and services.

Knowledge of Halal concepts is also rising among non-Muslims. Concerns of natural, food safety and health products are the driving forces behind the increased interest of Halal products among non-Muslims (Golnaz *et al.*, 2010; Haque *et al.*, 2015). Although previous studies agree that Muslims population and Halal certification played a significant role in influencing Halal product demand (Ambali and Bakar, 2014; Tarak and Kilgour, 2015), the quantum of influence of these variables is still lacking.

With exception to Masron *et al.* (2015) and Masron *et al.* (2014), studies on halal trade flows particularly on halal products that have halal certification are lacking. The only empirical evidence on Halal certification impact of trade flows, thus far, are provided by Masron, Azman, and Hassan (2014) and Masron *et al.* (2015), in their study on factors that could influence Malaysian exports to Western Asia countries. In terms of food export flows, Masron *et al.* (2014), found that an increase in the approval of Halal certification in Malaysia did not support food exports. In contrast, their estimate shows that Halal certification is not significant in influencing food exports. They point out that the result could be explained by the replacement of non-certified products with Halal-certified products by the same producers; hence, the insignificant estimate of the influence of Halal certification. However, in another study Masron *et al.* (2015) found a positive effect of Halal certification on Malaysia's export. Therefore they conclude that the competition with Halal certification from other countries is causing the small quantum of the estimate.

The focus of the policy for the development of the Halal industry in the HIMP and the 11th MP is on encouraging more company to acquire Halal certification and also to strengthen the Halal integrity network. However, the empirical evidence of Halal certification influence in promoting Halal exports is almost non-existence. Exposures to Halal information, religious belief, health reason and Halal certification logo are the four factors that influence the difference in the level of Halal awareness (Ambali and Bakar (2014). However, the fastest and easy way to identify Halal products is through a Halal logo that is used in labelling products that have acquired Halal certifications. Previous literature on the intention to purchase Halal products highlighted that Halal certification and Halal logo played a significant role in influencing Muslim's purchasing intention. The influence is more than other certification and standard such as the International Organization for Standardization (ISO) certification (Shafie and Othman, 2006; Awan, Siddiquei and Haider, 2015; Tarak and Kilgour, 2015).

However, studies in Halal trade flows, demonstrate that several researchers (Mazlan and Hamzah (2015) and Majeed, Al-Zyoud, and Ahmad (2019) do use actual Halal trade data in their attempt to examine Halal trade flows. Mazlan and Hamzah (2015) attempt to identify the factors that could enhance Halal exports to developing countries. They found a statistically significant influence of importers GDP on Halal exports demand. Although their finding indicates the importance of importers GDP on Halal exports, there is an absence of trade cost variables in their augmented gravity model. Thus, the result raises questions whether the estimate could be considered as valid.

Majeed *et al.* (2019) studied the import demand of Halal meat by OIC members using the augmented gravity model with a focus on the difference in demand according to Islamic jurisprudence. They found that GDP positively influenced Halal trade and claimed that adjacency and jurisprudence would increase trade between the two country pair. Another

interesting finding by Majeed et al. (2019) was the positive influence of distance in the Halal meat import flows. They explained that, since the neighbouring countries of the OIC members are unable to supply their meat demand, then the supply come from the main exporters who are non-OIC members and located in a different continent. Thus, the estimated result for distance shows that the farther the geographical location of the two-country pair, the higher the import to the OIC members. This is because the intra-trade among OIC member could not meet the demand of the country as well as distrust of the society on Halal meat from OIC members themselves.

Conceptual Framework of the Determinants of Halal Trade Flows

As the purpose of this study is to identify the determinants of Halal trade flows, the gravity model that has been widely used by others authors in estimating trade flows is adopted (Yotov *et al.*, 2016; Heid, Larch and Yotov, 2017). The gravity model is theoretically sound and has remarkable predictive power to estimate trade flows as well as incorporating supply and demand factors and any other factors that could influence bilateral trade (Kepaptsoglou, Karlaftis and Tsamboulas, 2010; Heid, Larch and Yotov, 2017). A review of ten years of empirical studies on gravity model shows that the most common variable used as the predictor variables are Gross Domestic Product (GDP), Gross Domestic Product per Capita (GDPC), distance, common language, common border, Free Trade Agreement and bilateral exchange rate (Kepaptsoglou, Karlaftis and Tsamboulas, 2010).

In analyzing the trade flows of Halal products, consumer behaviour with regard to religion as well as the extensive margin of Halal certification impact on Halal trade flows was included in the gravity model. Deductively, the countries with the majority of Muslims in their population should import more halal products compared to others. Figure 2 below illustrates the conceptual model used in this study, guided by the theoretical gravity model, consumer behaviour theory.

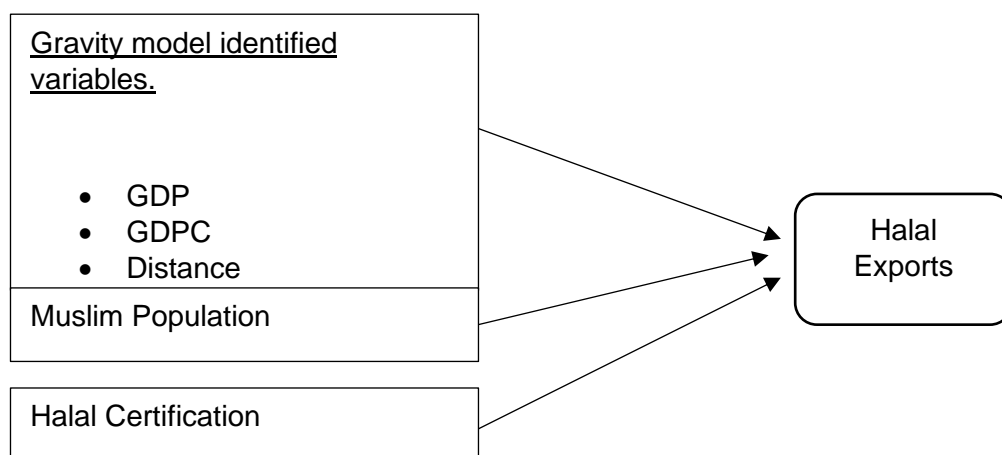


Figure 2: Conceptual framework

Methodology

In identifying the determinants of Halal trade flows, this study integrates the latest developments in the empirical gravity literature. The gravity model is the perfect model to examine bilateral trade flows because although it is an ex-post model, it can still be used to answer the what-if question and has the predictive power between 60 to 90 per cent in

producing a correct estimation of trade flows (Ivus and Strong, 2007; Kepaptsoglou, Karlaftis and Tsamboulas, 2010; Head and Mayer, 2013; Krugman, Obstfeld and Melitz, 2015). The properties of the Gravity model are also very realistic with a general equilibrium environment that could accommodate multiple countries, sectors and firms in the equations (Yotov *et al.*, 2016).

The sample frame consists of export flows of Malaysia Halal product to 190 partners for the year 2010 till 2018. With an exception to Halal export and the dummy variable, all series are converted to natural logarithms form. Missing exports data for the period of Q1:2013, Q1:2018 and Q2:2018 were estimated using a linear interpolation method. This study used panel data regression model with Poisson Pseudo Maximum Likelihood (PPML) estimator that estimates the hypothesized model with intra and international exports as a dependent variable with the inclusion of importer time fixed effect, and intranational trade fixed effect to account for multilateral trade resistance (MTR) and distance puzzle.

In order to get the estimation for country-specific variables, this study follows the recommendation by Heid *et al.* (2017), by using intra and international trade as the dependent variable in the structural gravity model. Inclusion of intranational trade allows identification of country-specific variables even in the presence of exporter and importer fixed effects. The intra-national trade flows or domestic trade flows is the difference between gross domestic production minus total exports (Heid, Larch and Yotov, 2017). Thus, calculations for intra flows of Halal export involve matching the Malaysia Standard Industrial Classification, (MSIC) production code with the SITC trade code in order to get the production of products in the Halal category. The MISIC is the classification for productive economic activities, in which the production data is reported. By matching the code, the total number of production of products that are related to Halal industry domestically which denotes by GMP_m will be obtained. The calculation for intranational Halal trade flow of halal export is given in the formula below:

$$HEX_{ii} = (GMP_m \times \% \text{ share of } PoH_m) - HEX_{mj} \dots(1)$$

Where;

HEX_{ii} = Intranational trade of Halal products

GMP_m = Malaysia Gross Manufacturing Products

PoH_m = Production of Halal products

HEX_{mj} = Malaysia Halal export

The share of production of halal products is calculated using interpolation of HDC's targeted share to GDP of halal industry at 5.9 per cent in 2010 and 7.5 per cent in 2015. In order to get the total intra and international Halal trade flows, the intra-trade flows are added with the international trade flows, using the formula below:

$$HEX_m = HEX_{ii} + HEX_{mj} \dots(2)$$

Where;

HEX_m = Inter and Intranational trade flow of Halal products

The specification of the structural gravity model employs in this study are as follows:

$$HEX_{m,t} = \exp [\chi_{j,t} + \mu_{mj} + \beta_1 \ln GDP_{m,t} + \beta_2 \ln GDP_{j,t} + \beta_3 \ln GDPC_{m,t} + \beta_4 \ln GDPC_{j,t} - \beta_5 \ln DIS_{mj} + \beta_7 \ln HC_{mj,t} + \beta_8 CNTG_{mj} + \beta_{10} MP_j] \times \varepsilon_{mj,t} \dots (3)$$

where:

- HEX_{m,t} = Halal Exports
- $\chi_{j,t}; \mu_{mj}$ = Destination time fixed effect; intranational trade fixed effect
- IGDP_{m,t}; IGDP_{j,t} = Log of GDP of Malaysia; Log of GDP of host countries;
- IGDPC_{m,t}; IGDPC_{j,t} = Log of GDP per capita of Malaysia; Log of GDP per capita of host countries;
- IDIS_{mj} = Log of the distance between Malaysia and host countries in kilometre;
- IHC_{mj,t}; = Log of number of Halal certification in Malaysia and host countries;
- CNTG_{mj} = dummy variable that takes a number 1 if Malaysia and the host countries share a common land border and 0 otherwise.
- MP_{mj} = dummy variable that takes a number 1 if the population of host countries consist of Muslim majority and 0 if otherwise.

The Impact of Halal Certification and Muslims Population on Halal Trade Flows

The Pearson Correlation test was performed, and the results is shown in Table 1. It is clear that the majority of the pairwise variables are not strongly correlated (i.e. all r <0.70). However, the results of the Pearson Correlation test indicate that there is a significant linear relationship among the variables of choice as the correlation coefficient (r) is significantly different from zero. This proves that the variables have a relationship between them (Gujarati and Porter, 2009).

Table 1
Pearson Correlation Pairwise Matrix

	HEx	IGDPM	IGDPj	IGDPCm	IGDPCj	ldist	lhc	CNTG	MP
HEx	1.000								
IGDPM	0.006	1.0000							
IGDPj	0.147	0.0382	1.000						
IGDPCm	0.007	0.9232	0.031	1.0000					
IGDPCj	0.050	0.0408	0.388	0.0394	1.0000				
ldist	-	-	-	-0.0000	-0.006	1.000			
	0.742	0.0000	0.089			0			

Ihc	0.302	0.04	0.510	0.0156	0.2949	-	1.000		
	9		3			0.327	0		
CNTG	0.468	-	0.125	-0.0000	0.0933	-	0.395	1.000	
	5	0.0000				0.641	4	0	
MP	0.099	0.0000	-	-0.0000	-	-0.135	-	0.105	1.000
	5		0.007		0.3046		0.074	2	0
			8				2		

PPML estimator is used to estimate the impact of the Muslim population and Halal certificates to Halal trade flows. PPML is a superior estimator that has taken care of the problem of heteroskedasticity and autocorrelation, as agreed by various studies (Yotov, 2012; Gómez-Herrera, 2013), thus, the result will be efficient and consistent. Robustness analysis is conducted to check whether the estimated coefficients still hold in term of its priori and magnitude. The robustness analysis is performed for the estimates which includes estimating Halal trade flows with and without MTR terms and intra fixed effect variables as well as estimating the model with only international trade in the samples (exclude Malaysia).

Column (1) - (2) show the estimation for the model that does not include origin country (Malaysia) in the samples; thus, the dependent variable is HEX_{mj} , and the intra-pair fixed effect was excluded from the model. All variables were significant minimum at 0.1 significance level with all but three variables have a sign that differs from the hypothesized model. The estimates of three variables, namely, GDP_m , $GDPC_j$ and CNTG were negative when the model hypothesized all these variables to be positive in influencing Halal trade flows. All other variables were found to have a positive influence on Halal trade flows, while distance showed a negative sign similar as in the expected theory. The results from this specification were proved to be robust and consistent; however, it could not estimate country specific variable as the fixed effect variable will absorb all country specific variable. Even though the model produced results for the countries specific variables, the result was meaningless according to Head and Mayer (2013).

Column (3) shows the estimated result of the PPML model for the full sample model of 190 countries without the MTR variable, while column (4) is the estimated result for the model with MTR variable without intra pair fixed effect variable that accounts for the unobserved effect in intra trade. The estimated results between these two model did not differ much, and all estimates have the same direction of influence. However, the common border variable was found to be significant in the model specification (4). Column (5) gives the full estimates of the study model, as in the model specification 1. This specification was being employed by trade scholars to explain inter, and intra trade flows as well as a meaningful estimate of country-specific variables.

Table 2

Gravity results of Poisson-PML model

VARIABLES	No Malaysia		Full sample		
	(1)	(2)	(3)	(4)	(5)
IGDPm	-2.7970** (1.2993)	-2.7654** (1.2804)	-2.4974*** (0.8546)	-2.4755*** (0.8204)	-2.7058*** (0.8350)
IGDPCm	3.3305** (1.4143)	3.2938** (1.3940)	2.9970*** (0.9247)	2.9730*** (0.8910)	3.1318*** (0.9004)
IGDPj	0.4694*** (0.1191)	0.4944*** (0.1257)	0.4685*** (0.1236)	0.4878*** (0.1277)	0.4973*** (0.1250)
IGDPCj	-0.1729** (0.0725)	-0.1798** (0.0752)	-0.2481*** (0.0890)	-0.2561*** (0.0928)	-0.1797** (0.0751)
IDIS	-1.0179*** (0.1370)	-1.0152*** (0.1187)	-0.5551*** (0.0538)	-0.5541*** (0.0493)	-1.0153*** (0.1182)
lhc	0.1733*** (0.0596)	0.1691*** (0.0578)	0.1671*** (0.0592)	0.1640*** (0.0569)	0.1661*** (0.0572)
CNTG	-1.7586*** (0.4673)	-1.8199*** (0.4165)	-0.9052 (0.5750)	-0.9659* (0.5233)	-1.8081*** (0.4140)
MP	0.3283* (0.1956)	0.3579** (0.1820)	0.1000 (0.2347)	0.1149 (0.2185)	0.3557** (0.1809)
Constant	13.3486*** (4.8254)	12.7309*** (4.8731)	9.3602*** (3.1889)	8.8532*** (3.1347)	13.4510*** (3.4038)
Observations	1,701	1,701	1,710	1,710	1,710
Fixed effect					
Imp_time	NO	YES	NO	YES	YES
Intra_pair	NO	NO	NO	NO	YES

Robust standard errors in parentheses ; *** p<0.01, ** p<0.05, * p<0.1

Results of the Pseudo₂ for the model indicates that the independent variables could explain 96.01 per cent of the behaviour of the dependent variable. Estimated results, as shown in Table 2, column (5), shows that all identified determinants are statistically significant and three out of eight determinants have a difference priori sign from the hypothesized framework. The size of Malaysia's economy, the purchasing power of importers and common border were having a negative influence on Halal exports contrary to its priori expectations. Meanwhile, Malaysia's capital and labour ratio, importer's GDP, halal certificates and Muslim population have a positive influence on halal trade flows.

Size & Consumer Preference

The estimates obtained for Malaysia's GDP and importer GDP's were significant. However, the elasticity of trade for Malaysia's GDP was negative, while the importer GDP's were positive in influencing Halal exports flow. As shown in Table 2, with the confidence level of 99 per cent, a 1 per cent increase in the level of Malaysia's GDP will lead to a decrease of 2.7 per cent in Halal export flows. As for the importers' economical size, with 99 per cent confidence level, an average of an increase of 1 per cent in importer GDP's will result in higher export of Halal products by about 0.5 per cent. The results indicated that the size of trading partners indeed has influence over trade flows, as postulated by the gravity model framework. The negative estimates influence of Malaysia's GDP and positive influence of host country GDP's on Halal

export implies that the market size of Malaysia's trading partners is more important in determining Malaysia's Halal exports. A study by Ismail & Said (2010) on trade between Malaysia and OIC members also concluded the same. They further explained that because export is the dependent variable, the size of importers is more important as the determinants rather than the producers GDP. The negative influence of Malaysia's economic growth on halal exports flow could be attributed to the composition of Malaysia trade. Malaysia's trade are highly dependent on E&E sector, thus, *ceteris paribus* based on the estimates, if changes are not made in the composition of Malaysia's trade, halal export will suffer from economic growth as the focus will be in the E&E sectors, instead of the higher potential of halal industry.

The coefficient on GDPC variables also has a different sign between Malaysia's as exporters of Halal products and the importers. At 99 per cent confidence level, the estimated result shows that on average Halal trade flows would increase on average by 3.1 per cent for every 1 per cent increase in GDPC. In line with the previous findings on trade flows research (Bergstrand, 1989; Martínez-Zarzoso and Vollmer, 2016), this study also found that the increased in Malaysia's GDP per capita, *ceteris paribus*, will push Halal exports to flow higher. This explanations indicated that an improvement in Malaysia's capital-labour ratio would push the productivity higher and thus translated into higher productions and more output that could be exported.

Meanwhile, for the importers GDPC, the estimated elasticities show a small negative influence at 95 per cent confidence level. Every increased in importers GDPC will push down all exports flows on average by 0.18 per cent. The negative sign for the GDPC of importers implied that in the host country, the effect of economies of scale is more dominant than the absorption effect when income per capita increased. The negative influence of importers GDPC also implies that Malaysia's Halal products are not a luxury good; instead, it falls under necessity goods (Bergstrand, 1989; Breuss and Egger, 1999). The findings refute claims by the Governments that Halal Malaysia is considered a premium brand and goods (Halal Industry Development Corporation (HDC), 2016).

Transaction Cost: Distance and Adjacency

As a proxy for trade cost, the farther distance between trade partners, the cost of exporting goods will be higher (Anderson, 1979; Bergstrand, 1985). The distance variables are found to be negative and significant, which endorses the gravity model notion. The elasticity of trade with respect to distance was highly significant at 0.01 level indicating that on average, *ceteris paribus*, a 1 per cent increase in the geographical distance between Malaysia and importers of its Halal products leads to a fall of approximately 1 per cent of Malaysia's Halal exports flow. As explained by Anderson and Van Wincoop (2004), a significant proportion of trade cost involve transportation and logistics cost. As such, the farther proximity between trade partners the higher the trade cost will incur not only because of the transportation cost but also lack of commonality traits and flow of information that will be hinder the trade process. Another important finding of this study was the negative influence of a common border to the flows of Halal exports. The results were against the theoretical belief that postulate common border has a positive influence to trade flows. The common border dummy variables are significant at 0.01 level in explaining Halal exports flow. However, the coefficient estimates showed a negative effect which indicated that countries sharing the same borders with Malaysia imported 1.8 per cent times less Halal products compared with other countries.

Previous study on Malaysia trade flows showed that, although the impact is small, the common border have a positive influence and is an important determinant of trade flows (Tan *et al.*, 2018). The previous studies that investigates the impact of a common border on trade flows also found a country that shares common border will trade more with each other (Yotov *et al.*, 2016; Heid, Larch and Yotov, 2017). However, studies by Ismail and Said (2010), found a negative effect of the common border in Malaysia bilateral trade with 48 countries that have a trade agreement with her. They found a negative influence of common border in their analysis of the impact of Malaysia FTAs on the margin of trade. They rationalize the result with the intuition that with liberalization, trade cost is reduced over the years; thus, countries are encouraged to increase intensive margin with existing partners. Consequently, for the case of Halal exports, this study found that Malaysia export is less to its neighbouring countries particularly the country that shares a common border with Malaysia as compared to other countries, the result is in line with Ismail and Said (2010). The negative impact for halal trade flows could be explained by the existence of strong Halal industry in the neighbouring countries, namely, Thailand, Indonesia, Singapore and Brunei. These countries have established domestic Halal industries that offer a variety of Halal products. As postulate by international trade theory, countries that produce similar products would not lead to trade enhancement. In order to gain market share and increase export flows to these countries, the focus should be given on the intensive margin of Halal products as suggested by Ismail and Said (2010) as well as formulate an effective branding and promotional exercises.

Muslims and Halal Certification

Concerning the Halal certificate variable, as expected, this study observed that the influence of Halal certificate was highly significant and positive, at a significant level of 0.01, every increase of 1 per cent in the approval of Halal certificates would push Halal export flow by approximately 0.16 per cent. Even though the effect is small, it affirms the effect of having an extensive margin of Halal certificates. These findings were consistent with (Masron, Azman and Fujikawa, 2015), who found a positive influence of Halal certification on Malaysia's trade, although they found the effect was very marginal, i.e. less than 0.05 per cent. Although they argue that competition from host countries certificate could be the reason, another plausible explanation would be the choices of their dependent variable. The marginal influence could be attributed to the dependent variables of their study, which are Malaysia total export and not the total Halal exports. The impact of Halal certification extensive margin would be smaller because total trade figure includes all products exported by Malaysia, which include non-Halal products and other products such as machinery, iron and steel, furniture and others that need not and could not be certified Halal. The positive influence of Halal certificates gives support to Malaysia's strategy to increase halal certifications and strengthen halal integrity ecosystem in developing its Halal industry. Products innovation, as well as a better understanding of Halal concepts and requirements, will increase halal certification application and leads to a larger offering of halal products.

The religiosity effect on Halal exports flows further affirmed by the positive and significant influence of the dummy Muslim population. The result indicated that countries that have a majority of Muslims population imported more Halal products by approximately 0.35 per cent higher than countries that did not have Muslim as its majority. The positive result confirmed the hypothesis of this study and provided empirical support to study by (Minkus-McKenna, 2007). The findings of this study also extended the study by Abdullah *et al.* (2018), on the difference between export demands for Halal products in Muslim majority countries as

compared to the non-Muslim majority countries. The small positive estimate for the dummy Muslim population indicated that countries with majority Muslim population only imported slightly more than others. This could be inferred as demand for Halal products were not dominated by Muslims, but also demanded by the non-Muslims as well. Consequently, this study supports suggestions from various studies that postulate the demand for Halal exports are not limited to Muslim populations only (Golnaz *et al.*, 2010; Haque *et al.*, 2015). The hygienic and wholesome offering that comes with *Halalan Toyyibban* concepts has successfully captured the interest of non-Muslims to consume halal products. This provides an opportunity for Malaysia to expand their market to new market with a marketing strategy that did not focus on the religiosity aspect of halal but more to the safety, hygienic and wholesome offering of halal products.

Conclusion and Recommendations

This study contributes to the body of knowledge through the identification of Halal certification influence on demand for Halal exports, and Muslim's demand on Halal exports flows using actual total Halal exports. Another findings by this study that differs from the mainstream theories is the negative effect of common border to Halal trade flows, however it validate the trade theory on less trade enhancement for trade activities between countries that produces same goods. This study also the first to define the Halal industry that is, an industry that produces and offer good quality products and services that is in accordance with the Syari'ah law and the concept of *Halalan Toyyibban*. It offers new insights to policymakers on the significance of Halal certification and thus indicated strategies in positioning Malaysia as the world leader in Halal hub as well as Halal referral centre.

Consequently, the Government needs to strategically streamline the Halal target market with specific criteria such as high GDP and close proximity to Malaysia as suggested by findings of this study. The focus should not be given only to the Muslim majority countries but also targeting Muslim's minority countries, specifically, China and India as the primary market. These two countries would be a better target market as they fulfil the criteria of a Halal target market. This is because the difference in demand between the Muslim country and the Muslims minority country was marginal.

However, In analyzing the determinants of Halal trade flows, the main limitation is the availability of Halal trade data. Other countries do not collect Halal trade data; thus, this study could only focus on the export flows of the Halal trade and not total trade flows. It is hoped that more halal related data would be gathered so that future study could examine both export and import flows as the results would be more enriching as each specific characteristic of partners country could be identified.

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